You have just been accepted into an internship at the **Organism Collection Department at the Museum of Natural History in Chicago**. As your first task, the head curator of the museum asks you to organize an exhibit to go along with a brand new shipment of stuffed bird specimens. The only guidelines he gives you are that the exhibit must be based on the various lifestyle conditions each bird lives with. This means that you must look at the adaptations that each bird has developed to live under the environmental conditions that they do. This would be things such as the food it eats, how they move around (with their wings and feet), and where they live. The only clues you have to build the exhibit are the physical characteristics of each bird specimen. You are to determine where each bird fits into three categories: bill structure, wing structure, and leg/foot structure.

**SAFETY: MAKE SURE NOT TO TOUCH ANY OF THE SPECIMENS WITH YOUR FINGERS**.

Using the below behaviors that go along with the different structures, try and guess how you expect each bird would behave with the structures that you see on it.

*Behaviors that go along with different bill structures:*

* Fruit eating
* Insect eating
* Meat tearing
* Nectar eating
* Fish eating
* Seed eating
* Specialty foods (digging under the dirt or under tree bark for insects)

*Behaviors that go along with different wing structures:*

* Flying in forested habitats that require quick maneuverability
* Feeding while in flight
* Flying very quickly to catch prey
* Making long distance migrations
* Soaring over oceans
* Soaring over land
* Swimming through water

*Behaviors that go along with different leg and foot structure:*

* Climbing trees or other surfaces
* Holding prey after they are caught
* Sitting upon a perch (tree branch or roost)
* Scratching through the dirt
* Swimming in water
* Wading in the water

**GUIDELINES FOR EXAMINING PHYSICAL STRUCTURES:**

1. Take note of size and shape. (Example: Is the structure is long, thin, pointed, round, short, or triangular)
2. Take note of special qualities. (Such as webbed feet or a serrated bill)
3. Do your best to imagine what the structure would do for the bird.
4. Using the behavior expected from three structures, predict what environment the bird would live in. (This could be near water, in forested areas, soaring high looking for prey, in trees, ect.)
5. **Remember** it doesn’t have to be the correct behavior or environment, it is just your **best guess.**

Use the table below to describe the physical structure of the bird, and explain the behavior that you would expect the bird to exhibit. Also make your **best guess** as to the environment where the bird lives.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Specimen Number** | **Physical Structure** | **Structure Qualities** | **Behavior Expected** | **Environment Predicted** |
|  | Bill Structure | flat and short | eating plants and insects | live in and near water, migration |
| Example  (Goose) | Wing Structure | long and pointed | flying long distance |  |
|  | Leg and Foot Structure | short and webbed feet | swimming and floating on the surface |  |
|  | Bill Structure |  |  |  |
| 1 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 2 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 3 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 4 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 5 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 6 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 7 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 8 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 9 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |
|  | Bill Structure |  |  |  |
| 10 | Wing Structure |  |  |  |
|  | Leg and Foot Structure |  |  |  |

Now that you’ve cataloged all of your expected behaviors and environmental conditions you think the birds would live under, split the birds into three groups to be displayed in the exhibit. List the specimens that you would put in each. They can be in any orientation that you want, just make sure that you make the three groups show three different qualities of a **single topic**. An example of a single topic would be what they eat. Also make a note of what types of background and other organisms you would use in your exhibit (would it be in a forest, would there be other animals there, what would it look like?)

**FOLLOW UP QUESTIONS:**

1)Now select **3** of the behaviors that you expected would be shown in your birds from the table above. Using the behaviors that we have talked about, come up with three examples of other organisms (mammals, reptiles, or amphibians) that exhibit the same behaviors and what structural features they have adapted to perform these behaviors.

1.

2.

3.

2) How does the niche of these birds help shape what their physical structures look like? Use an example from one of the physical structures in the table above.

3) Define the term adaptation and explain how it relates to the various structures that you observed in the bird specimens.

4) In the example of the Eagle, what would happen to the Eagle if instead of having a sharp bill for tearing flesh, it had a short pointed bill?

5) How could you use these methods of classifying organisms in your everyday life?

OUTDOOR EXPEDITION

Use this table to catalog four specimens that you find on your “Outdoor Expedition”. Looking at the environment they live in, write down a physical structure that you think they have adapted to live in that environment.

|  |  |  |
| --- | --- | --- |
| **Organism Name** | **Environment** | **Adapted Structure** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |